THE DEVELOPMENT OF COMMUNICATION SKILLS: MODIFICATIONS IN THE SPEECH OF YOUNG CHILDREN AS A FUNCTION OF LISTENER

MARILYN SHATZ
ROCHEL GELMAN
UNIVERSITY OF PENNSYLVANIA
ABSTRACT


This monograph reports three studies of the 4-year-old’s ability to adjust to a listener. In the first study (Study A) 16 Ss were pretrained on modified versions of standard tests of “egocentrism.” Following these, the children were asked first to tell an adult about a toy and then tell a 2-year-old about that toy. The eight Ss who had 2-year-old siblings were run on the toy task twice: once in an adult-sibling session and once in an adult-non-sibling session. Finally, tapes were made of spontaneous conversations between the Ss and their mothers. As expected, the Ss performed poorly on the tests of “egocentrism.” In contrast, Ss adjusted their speech production to their different listeners. Speech to 2-year-olds contained more short, simple utterances and more attentional utterances. The younger the 2-year-old, the greater was the observed speech adjustment. All children adjusted their speech whether or not they had younger siblings.

In Study B tapes of uncontrolled conversations of five 4-year-olds each talking to a 2-year-old and an adult were obtained. Analyses of speech adjustments revealed a pattern of results like those of Study A.

In Study C, tapes of eight 4-year-olds talking to peers were collected and compared with the taped conversations with their mothers obtained in the first study. Analyses of the peer-directed versus adult-directed speech showed that, with respect to utterance length, the use of various constructions, and attentional utterances, peers were treated like adults. These results, combined with those of Study A, indicate that the 4-year-old adjusts his speech with regard to the changing capacities of different-aged listeners.

The results of these studies are discussed with regard to previous work on the preschooler’s communication skills and the variety of listener-produced cues that may influence the 4-year-old’s tendency to “talk down.” The implications of speaker-listener interaction for the process of language acquisition are considered.

I. INTRODUCTION

The ability to adjust one’s speech to a variety of listeners is a fundamental feature of communicative skill (Ervin-Tripp 1968; Flavell, Flavell, Fry, Wright, & Jarvis 1968; Hymes 1972; Piaget 1928).

Do 4-year-old children have this communicative ability? Investigators in the fields of cognitive development and sociolinguistics, working from different theoretical perspectives, propose opposite answers to this question. Piaget postulates that the preschool child is egocentric, that is, unable to take into account perspectives other than his own (Piaget 1926; Piaget & Inhelder 1956). Without the ability to consider the perspectives of others, the child cannot adjust his message to a listener. Hymes (1971) contends that, as a child acquires syntactic competence, he also learns how to use his language appropriately in social settings. Given that the 4-year-old’s syntactic abilities are reasonably well developed (e.g., Brown 1973; McNeill 1970; Menyuk 1963), some ability to adjust speech to a listener also should be evident by this age.

Several studies showing that young children are poor communicators have been taken as support for the Piagetian position. For example, in a study by Piaget (1926), children were required to reproduce for a peer a verbal explanation of a water tap or a syringe. The resulting communications by the 6-year-olds (the youngest Ss used) revealed that the children were unable to order their explanations properly or to indicate causal relationships in ways that insured comprehension by their listeners. Gureckis, Kraus, and Weisberg (1966) reported that preschool children performed poorly when required to label one of several objects so that their listeners could identify it. That is, the children failed to provide distinctive labels for each of the objects. Similar findings are reviewed by Flavell et al. (1968).

These studies focused on the child’s ability to label distinctive features or to provide ordered, causal statements. But providing appropriate labels for distinctive features demands better classification and vocabulary skills than most young children possess (Brown 1958; Inhelder & Piaget...
II. STUDY A: SPEECH ABOUT A TOY TO 2-YEAR-OLDS AND ADULTS

GENERAL DESIGN

In addition to placing the listener variable in a topic-controlled setting, the design of Study A included two other features. First, half of the 4-year-old Ss were the only or youngest children in the family. The other half had 2-year-old siblings. The variable of a younger sibling was included in order to assess the hypothesis that a 4-year-old child who uses shorter and simpler utterances to a 2-year-old merely imitates his parents' way of talking to his younger sibling. Children who had younger siblings were run twice, once with their sibling and once with an unrelated 2-year-old. This allowed us to assess the sibling variable in two ways. We compared children who had younger siblings with those who did not when both spoke to unrelated 2-year-olds. We also compared the way that children who had younger siblings talked to their sibling as opposed to an unrelated 2-year-old.

Second, sex of the 4-year-old and the younger listener was counterbalanced. However, in the cases where a 4-year-old spoke to both his sibling and a nonsibling, the nonsibling's sex was the same as the sex of the sibling. Availability of Ss with younger siblings necessitated the decision not to counterbalance the sex of sibling and nonsibling. Figure 1 diagrams the sex and sibling speaker-listener relationships.

SUBJECTS

The Ss were 16 children, 39-60 months of age, with a mean age of 52 months. Only one S was younger than 45 months. All Ss were native English speakers from middle- to upper-middle-class professional families.

Others participating in the study were adults (two Es and parents of the Ss) and younger children, all of whom had or will have English as their first language. The latter either were siblings of the Ss or were from families similar to those of the Ss. Age range of the younger children was 19-34 months, with a mean age of 26 months. The mean age difference between speaker and younger listener was 26 months, with a range of 17-36 months.

PROCEDURE

One of two Es collected the data for each S.

In order to foster a natural, relaxed atmosphere during the experimental sessions, we took the following precautions to assure that participants were acquainted with each other before a session was run. The E made two visits, usually a week apart, to the homes of those Ss not previously familiar with her. She brought simple toys with which she and the S played. If S did not know his younger listener to be well, arrangements were made for the younger child to be present at one of the preliminary play sessions. The E collected no data at these times.

The study itself consisted of three phases: (1) pretests, (2) toy task, and (3) taping of spontaneous speech. Phases 1 and 2 were conducted one right after the other, in either the E's home (if the S was very familiar with it and comfortable there) or the S's home. Phase 1 was administered only once, to all 16 Ss. While there are 16 Phase 1 sessions, there are 24 Phase 2 sessions. The eight Ss with siblings participated twice in Phase 2, once with a sibling and again with a nonsibling on another day; the order was counterbalanced.

Phase 1: pretests.—Experimenter whose studies show that young children have some ability to take the perspective of another stress the simplicity
play with them. The S was given the following instructions: "——— is coming soon. Do you think he'll like this toy? I don't think he's seen it before. When he comes, you tell him how to work it. You'll have to tell him and not just show him, but somehow tell him why he can do it too."

When the younger child arrived, the two children played undisturbed, although E and sometimes a mother usually remained in the room. If no conversation at all was occurring between the children, E prompted S with statements like, "Tell —— how he can dump the marbles," or "Tell —— where he should put his animals." The amount of prompting necessary varied greatly with Ss. When it became apparent that interest in the toy was flagging and that no further interactions with it were likely, the session was ended.

Phase 3: spontaneous speech.—The final phase of Study A was the collection of a 15-20-minute tape of each S in conversation with a parent. The parents made the tapes within a week of Phase 2. They were instructed to use the recorder at times when they and the child were engaged together in an unusual, ordinary activity. The purpose of these tapes was the establishment of a baseline of uncontrolled speech production to adults for each S. Since the experimental design required the child to speak to an adult other than a parent about the toy, the tapes allow us to assess possible effects of the experimental setting.

Results

Ten of the 16 Ss passed at least one of the pretests. Of these Ss, only two passed both. There were six passes on the airplane task, a task which required the child to select a critical feature as a "hint" on at least one of the three test trials. And there were six passes on the perspective task, a task that required the child to coordinate and communicate spatial perspective. The percentage of Ss performing successfully on each task (57%) is comparable to the results of others who have used simpler versions of "egocentric" tasks with preschool-aged children (Selman 1971; Shantz & Watson 1971).

TOY TASK RESULTS

We present representative protocols to illustrate that Ss were task oriented when they talked to both an adult and a younger child:
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![Graph](image)

**Figure 2.** Distribution of utterances of various lengths in 16 adult-non-sibling sessions.

Analyses of the two measures obtained in the eight adult-sibling sessions confirm the effect of listener reported above. Table 2 summarizes the

**Table 2**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Adult Listener</th>
<th>Younger Sibling Listener</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average amount</td>
<td>61.0</td>
<td>37.6</td>
</tr>
<tr>
<td>Mean MLU</td>
<td>0.2</td>
<td>0.4</td>
</tr>
</tbody>
</table>

*Each cell total is based on eight communication periods between speakers and listeners.*

average amount and mean MLU results for the adult-sibling sessions. Figure 3 shows the distribution of utterance lengths. Two-way analyses of variance yielded significant F's (1,6) of 9.08 and 15.25 for amount of speech and MLU, respectively. The sex of speaker x listener interaction was significant in the amount analysis, F(1,6) = 12.72, but not the MLU analysis. The average longest utterance to adults was 19.6 as against 10.8 to younger siblings.²

²Given that the Ss talked significantly more to adults than to younger children, it might be argued that the MLU effects are artifacts. The child might tend to increase the length of his utterances the longer he talks. Two kinds of analyses lead us to reject this argument. First, we equated the size of within-session sam-

The data for individuals support the group effect. In 21 of 24 sessions, MLUs to younger children were shorter than to adults, and in 23 of 24 sessions the longest utterance produced by S was directed to the adult listener.

In summary, comparisons of MLU, distributions of utterance lengths, and average longest utterance show that 4-year-old children selectively varied their language production depending upon their listener. The following protocols from A. M. illustrate the tendency of Ss to use long utterances to their adult listeners as opposed to short utterances to the child listener.

A. M. To Adult: . . . You're supposed to put one of these persons in, see? Then one goes with the other little girl. And then the little boy. He's the little boy and he drives. And then they back up. And then the little girl has marbles . . . [Questions from adult and responses from S.] And then the little girl falls out and then it goes backwards.


Sibling effects—Table 3 shows the average amount of speech and...
6. Predicate complements—"wh" complementizers: instances of sentential complements introduced by the interrogatives what, how, when, why, where after the verb or the indirect object noun phrase of the main sentence. Included here were "wh" to and "wh" (noun/pronoun) constructions; e.g., "I'll show (you) how to do it" and "I'll show (you) how I do it."

7. "To" constructions: instances of to followed by a verb, except those following a "wh" complementizer as in category 6. This category includes noun and verb phrase complementation such as "It's hard to do it," "I'll try to do it," and "How do you start him to talk?" It also includes a set of utterances that are similar to the "to" complementizer constructions on the surface but could be described as "semi-auxiliaries." Examples are "I'm going to do it," "I used to do it." In such utterances do seems to function as the main verb, while "in going to and used to appear to be more like auxiliaries."

Note that these "semi-auxiliaries" might have been separately classified.

We have not done so because many of the "to" constructions produced by the children are difficult to assign uniquely to either a predicate complementation or "semi-auxiliary" category. We preferred not to impose a unique interpretation of their deep structure on them and instead established the broader category of "to" constructions.

Interesting issues, e.g., the classification of certain constructions as noun phrase or verb phrase complementation (see Rosenbaum 1967). Rosenbaum shows that analysis of the structure of English predicate complementation is a formidable task and gives evidence that our categorization is not unreasonable, at least as a start.

8. Accessories: words or phrases that are set off by a pause at the beginning or end of an utterance and that supplement the main part of the utterance rather than form an integral part of it. These included such items as yes . . . . no , . . . , and right , . . . which Jespersen (1961) refers to as "articulate" or "partially articulate" sentences; . . . , can't we? , . . . , do you? , which are instances of tag questions (Brown & Hanlon 1970), and hey , . . . , book , . . . , Mommy , . . . , etc., defined below as attentionals.

Two individual, working together, inspected every long utterance for each of these categories. Decisions about category assignment were made jointly. Every instance of a construction in any of these categories was counted. This was done separately for the adult-naming sample and adult-naming sample. Since both samples yield comparable conclusions, only the adult-naming results are presented in full.

Findings—Table 4 presents descriptive statistics summarizing the 4-year-olds' tendencies to use the various constructions in their production of long utterances. These tendencies are indexed in two ways. The first is a rate measure based on the total sample of long utterances produced by all Ss to each class of listener. The reciprocal rate of occurrence (U) was computed by dividing the total number of long utterances to a class of listener by the total number of instances of a given category to that class of listener. Thus, the reciprocal rate of occurrence shows the average number of long utterances occurring before an instance of a given category is found. For example, on the average, every 6.8 long utterances in the total sample to adults contained one instance of a coordinate construction. The second index involves the percentage of Ss who used a particular category to a given listener at least once. Since two Ss produced no long utterances to their younger-naming listeners, the Ns represented in the adult and naming percentages are 16 and 14, respectively.

A judgment that a given category was used selectively was based on both descriptive statistics. Rate differences had to reflect individual tendencies to use the particular category selectively, and vice versa. Whenever one measure was not corroborated by the other, we chose to interpret the data conservatively.

Three categories show no differential selection from linguistic repertoire as a function of listener. More than half the children used pronominal adjectives, "to" constructions, and accessories with both adult and younger listeners. The rates of occurrence for each of these categories reveal comparable frequent occurrences regardless of listener.

Such cases may be interpreted as auxiliary-like. The last example shows that want to often coexists with the phonological meter which characterizes other auxiliary-like forms (e.g., gonna instead of going to, weren't instead of used to, likewise wasn't instead of want to). This is further evidence for the position that such constructions may require a different treatment from predicate complements. Similar difficulties occur with verbs like here and get.
dependent selections in the total adult-nonsibling sample also did so in the subset of sessions involving older 2-year-old listeners.  

Tables 4 and 5 do suggest some tendency for 4-year-olds to use different constructions with older 2-year-olds as opposed to younger ones. When subordinate conjunctions and predicate complements with "that" and "wh" complementizers did occur with 2-year-old listeners, they occurred exclusively in the speech addressed to children who were 28 months or older.

The Use of Attentional Utterances

Adults have better attentional capacities than 2-year-olds. If the 4-year-old takes account of the differences in these capacities, he should vary the utterances he uses to get and hold attention depending on his listener.

Method of speech analysis.—The sample analyzed here was the data from the 16 adult-nonsibling sessions. The 4-year-olds used a variety of attention-getters and attention-holders. These included hey, see, look (it), watch, no (when used to stop the listener's action, see Klima & Bellugi-Klima 1971), and listener's name as attention-getters; and now and okay when used as attention-holders as opposed to fillers. Whenever an utterance included one or more such words used in these ways, the utterance was scored as an attentional utterance.

To determine whether different types of attentional words were used with different listeners, we counted and categorized only the first attentional word in each attentional utterance. The categories of attentional words were: (1) hey; (2) names, including Mommy; (3) see, look, and watch; (4) no; and (5) now and okay.

Findings—Of the S's utterances to adults in the 16 adult-nonsibling sessions, 4% were attentional. In contrast, 21% of the S's utterances to younger listeners were of this type. A sign test revealed that this difference was significant. The age of the younger listener also significantly affected the production rate of attentional utterances: 18% of all utterances addressed to older 2-year-olds were attentional while 26% of utterances spoken to younger 2-year-olds contained at least one attentional word ($x^2 = 4.95$).

The Ss tended to select particular types of attentional words for use with particular listeners. Table 6 gives the percentages of various types of attentional words used to the three groups of different-aged listeners. The younger the listener, the more our speakers used visual attention-getters like see, look, and watch. With an older listener, the 4-year-olds used more attention-holders and hey, which seemed to be a way of saying, "Here's something interesting." The following excerpts from one child's protocol illustrates the tendency to select different attentional words for different listeners:

D. H. TO ADULT: Hey, there are two gray foxes. . . Hey, here's a one. . . Hey, here's two cows.

D. H. TO CHILD UNDER 28 MONTHS OF AGE: Look! . . . See the elephant? See?

SPONTANEOUS TAPE RESULTS

To determine whether the experimental setting generally affected our Ss, we compared the MLUs based on the transcripts of the spontaneous parent-child tapes with the MLUs based on the adult-directed speech produced in the sessions with the toy. For the purpose of this comparison, the MLUs resulting from the first toy session in which a S spoke with an adult were used. Average MLUs for the spontaneous situation and toy task sessions were 6.2 and 5.7, respectively. A two-way analysis of variance where the main variables were sex and spontaneous versus experimental setting showed no significant effects. The average longest utterance produced to adults in each of the sessions was 17.7. Thus, the experimental situation did not appear to distort speech production to adults.

SUMMARY OF RESULTS

The pretests reveal that, on the basis of traditional tests of egocentrism, our Ss performed no better than expected. Each pretest was passed by only 38% of the children; only 13% passed both tests. In contrast, the results of the toy task show that all of the children were able to take their listeners into account to some extent. All 18 speakers reduced their utterance lengths to younger children in at least one session. The long utterance and attentional utterance analyses confirm the results of the utterance length analyses.

The tendency to treat the two classes of listener differently was not
to the child and to avoid asking yes-no questions. For the child—younger child tapes, they were told to avoid entering the conversation even when they had to stay in the room during the taping. The methods of data analysis for all reported measures are the same as those of Study A.

RESULTS

The tapes obtained by the mothers varied in length from 15 to 45 minutes. Since the length of speech sessions varied so widely, no statement can be made about amount of speech to adult as opposed to younger child listener. The average MLUs based on 331 utterances to mother and 570 utterances to 2-year-olds were 7.0 and 4.6, respectively. All five Ss produced shorter MLUs to 2-year-olds. The MLU listener effect is significant as assessed by a correlated t test ($t_s = 5.60$).

The distribution of utterances of various lengths to both types of listener was comparable to that shown in figures 2 and 3 and is therefore not illustrated. Seventy-three percent of the total utterances to adults exceeded four words in length, while 51% of those addressed to younger listeners were longer than four words.

The overall long utterances to adults differed from those to 2-year-olds in that they included more coordinate constructions and subordinate conjunctions: the reciprocal rates at which coordinate constructions were used with adults and 2-year-olds were 3.9 and 13.8, respectively. The U's for subordinate conjunctions were 34.6 and 101.0, respectively. In addition, the children used predicate complements—"wh" complementizers more frequently to adults ($U = 11.5$ to adults, $21.6$ to younger children), in the first two of these categories, individual tendencies to use them differentially supported the overall rate differences. The tendencies to use the constructions represented in categories 3, 4, 5, 7, and 8 were comparable for both classes of listeners.

The results of long utterance analyses support the results of Study A with one exception. In Study A the children used "that" but not "wh" complementizers differentially; the same was not observed in this study. In both studies the use of coordinate constructions and subordinate conjunctions favored the adult listener.

The analysis of attentional utterances revealed that 20% of all utterances to younger listeners contained an attentional word, 18% of adult-directed utterances contained an attentional word. The difference is not significant. While the observed percentage to younger listeners here is comparable to that reported in Study A, the adult percentage is considerably higher. The latter discrepancy seems attributable to the fact that one child was bent on using the word Mommy repeatedly and contributed half of the total number of adult-directed attentional utterances. It is also possible that the adult may not have listened as attentively in the spontaneous situation as in the task situation and hence the child may have been motivated to use more attentional words.

The results of Study B, taken with those of Study A, show that 4-year-old children adjust their speech to different listeners in uncontrolled and task-oriented conversations.
Table 7 summarizes the 4-year-olds' tendencies to produce various constructions in long utterances with adult and peer listeners. Only the results for categories 2 and 4 suggest any tendency for Ss to treat their listeners differentially. It is not surprising that there are slight differences in category use. What is surprising is the amount of similarity and the fact that no direction in favor of one class of listener over another is indicated by the differences. While the results for the subordinate conjunction category favored the peer, those for relative clauses favored the adult. All other categories showed no differential rate of occurrence; at least half the Ss used all the categories with both listeners. A comparison of tables 4 and 7 illustrates that peers are treated more like adults than they are like 2-year-olds.

Attentional utterances again show that Ss' conversations with peers were similar to those with adults. Seven percent of all utterances to adults and
and status. These factors also may have influenced the speakers. The increased use of attentional words with the youngest listeners provides clear evidence that the speakers responded to their listeners' ability to pay attention. Comments from several children suggest that the 4-year-olds had some knowledge of a 2-year-old's cognitive abilities. As they watched 2-year-olds play with the toys, the Ss commented to E:

A. B.: He thinks it goes like that, but it goes like that.
B. F.: She won't be able to get them out.
D. H.: She can't. Maybe I can do it. Perry doesn't know how to.

Apparently the 4-year-olds doubted that the younger children had the capacities to use the toy properly.

Shipley and Shipley (1968) showed that Quaker children reveal an awareness of their listener's status in their differential use of thee and thou. Our Ss also seemed to be responding to status when they instructed their listeners on the use of the toy. Investigators of adult interactions have shown that speakers tend to mitigate requests to superiors and aggressive requests to inferiors (Labov & Fanshel, in preparation). This can be accomplished by altering the form of an imperative. Our 4-year-olds tended to use unmodified imperatives with the 2-year-olds. They tended to soften the imperatives to adults with phrases like You're supposed to or You have to (see, e.g., J. K., p. 9).

Thus, the 4-year-old seems to take account of a variety of listener characteristics when he adjusts his speech. More research utilizing a variety of listeners may show how each of these characteristics influences the speaker.

FURTHER INDICES OF SPEECH ADJUSTMENT

We have focused primarily on variations in syntax as our index of speech adjustment. We expect that there are other types of speech analyses that also warrant attention. For example, Weeks (1971) has shown that speech registers such as clarity and pitch may be good indices of the young child's adjustment to a listener. May (1973) provides some evidence that the data presented in this Monograph reveal listener-dependent differences in voice-onset time.

It may also be possible to index speech adjustment by considering the speaker's choice of lexical items. A further inspection of our Study A data failed to reveal a listener-dependent use of "baby talk," for example, the use of diminutives such as horse and reduplications such as choo-choo. But it did reveal a selection of concrete versus abstract verbs, for example, show, look at, see versus know, remember, and guess. Our Ss in Study A tended to use concrete verbs with their younger listeners and abstract verbs with their adult listeners. For example, when the main verbs introducing "wh"-complementizers were analyzed along a concrete-abstract dimension, we found that 68% of those verbs directed to adults were abstract. Only 16.7% of those directed to younger children were abstract.

Thus there is evidence in our data that there are some lexical choices based on listener differences. How such choices interact with the syntactic adjustments reported is an important question for future investigation.

IMPLICATIONS FOR A THEORY OF LANGUAGE ACQUISITION

In addition to revealing the preschooler's burgeoning skill in communication, our data bear on the nature of the language acquisition process. The work on mother's speech shows that very young children receive from adults a fairly narrow and simple subset of the varieties of adult speech (Nelson 1971; Phillips 1970; Snow 1972). Such restricted inputs presumably make language learning easier for the very young child (Snow 1972). Our results show that 4-year-olds (with and without younger siblings) make similar adjustments for 2-year-old listeners. They use a preponderance of short utterances and make less frequent use of complex constructions. As illustrated in the protocols on pages 9 and 13, the speakers often repeat utterances or parts of utterances. Apparently, even 4-year-old help to produce a restricted and redundant linguistic environment for the early language learner.

We suggest that the boundaries of the environment are influenced to a great degree by the cues provided by the 2-year-old himself. For example, behaviors of attention may serve to elicit redundancies that aid in the processing and categorizing of linguistic information. Moreover, the 2-year-old responds best to a level of speech slightly more advanced that that which he himself produces (Shipley, Smith, & Gleitman 1969). His unresponsiveness to other levels of speech may function as a further cue to the speaker to adjust his level more appropriately. Indeed, the differential adjustments that 4-year-olds make to older and younger 2-year-olds suggest that the speakers respond to direct feedback from their listeners on the appropriateness of their production level. This position is further supported by work on adults. Snow (1972) showed that mothers reduced more in the presence of 2-year-olds than when they were merely told to talk as if a 2-year-old were present. This result suggests that, while the mothers knew they had to simplify their language, feedback from the child was necessary to maximize reductions.

The hypothesis that 2-year-olds elicit from their speaker a level of linguistic stimuli that is useful to the development of their own language rests on the assumption that the speech thus elicited and addressed to the 2-year-old is not simply a reduction to the 2-year-old's production level. For if it were, the 2-year-old would receive no new information from which to build his linguistic knowledge.
MONOGRAPHS


